

1                   **VARIABLE TEMPERATURE SEAT CLIMATE CONTROL SYSTEM**

**Abstract:**

5                   A temperature climate control system comprises a  
variable temperature seat, at least one heat pump, at  
least one heat pump temperature sensor, and a controller.  
Each heat pump comprises a number of Peltier  
thermoelectric modules for temperature conditioning the  
10                  air in a main heat exchanger and a main exchanger fan for  
passing the conditioned air from the main exchanger to the  
variable temperature seat. The Peltier modules and each  
main fan may be manually adjusted via a temperature switch  
and a fan switch, respectively. Additionally, the  
15                  temperature climate control system may comprise a number  
of additional temperature sensors to monitor the  
temperature of the ambient air surrounding the occupant as  
well as the temperature of the conditioned air directed to  
the occupant. The controller is configured to  
20                  automatically regulate the operation of the Peltier  
modules and/or each main fan according to a temperature  
climate control algorithm designed both to maximize  
occupant comfort during normal operation, and minimize  
possible equipment damage, occupant discomfort, or  
occupant injury in the event of a heat pump malfunction.

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